

## ABSTRACT

The invention relates to the control of the spatio-temporal uniformity of a pulsed gas laser beam, especially generated by a high-power excimer laser. According to the invention, two raised lateral parts are provided on at least one of the discharge electrodes, said parts enabling the electrical discharge to be initialised at this level and to remain constantly stuck at this level after having spread over the entire surface of the electrode between said raised parts. In order to compensate for the lack of uniformity of the discharge created by the lack of uniformity of the electric field, the collimation mask of the preionisation X-rays is thinned from the edges thereof towards the centre thereof in order to progressively reinforce the preionisation from the outer level of the discharge to the centre of the same. The invention enables a discharge to be obtained, and thus a plasma, which are both spatially uniform and temporally stable. The laser beam obtained from said plasma is thus uniform and stable itself.